Deep Creek Diversion Fish Screen Project
Draft Environmental Assessment

MONTANA FISH, WILDLIFE & PARKS
FISHERIES DIVISION

February 11, 2013

PART I: PROPOSED ACTION DESCRIPTION

A. Type of Proposed Action: Montana Fish, Wildlife & Parks seeks to reduce fish loss on Deep Creek by installing an effective fish screen on an existing irrigation diversion.

B. Estimated Commencement Date: The installation of the fish screen on the Deep Creek diversion is scheduled to occur in late summer or fall 2013.

C. Name and Location of the Project: This project is referred to as the Deep Creek Fish Screen Project, and the purpose of the project is to eliminate fish entrainment. This project will be constructed on Deep Creek, located approximately 3 miles northeast of the city of Fortine, Montana. Specifically, the project is located within Township 35 North, Range 25 West, Section 20, in Lincoln County (Figure 1). The project will occur entirely on United States Forest land.

D. Project Size:

Deep Creek is a third order tributary to Fortine Creek, within the Tobacco River drainage. The current point of diversion at this location consists of an open ditch that is approximately 80 feet long. A concrete structure and headgate control the quantity of water entering the irrigation conveyance system, which consists of approximately 25 feet of 18" corrugated metal pipe and 1.4 miles of open ditch. This project proposes to install a new headgate at the point of diversion, and an FCA Farmers fish screen and fish bypass within the existing open ditch between the point of diversion and the concrete structure. The concrete structure will remain in place. All proposed activities will occur within the floodplain of Deep Creek and existing diversion channel, and would have a footprint of less than ¼ acre.

Developed/Residential – 0 acres

1. Industrial – 0 acres
2. Open space/Woodlands/Recreation – 0 acres
3. Wetlands/Riparian – The Deep Creek Fish Screen Project would be located within the present floodplain and riparian area of Deep Creek. The total footprint of this project would be less than ¼ acre within the active floodplain.
4. Floodplain – 1/4 acre
5. Irrigated Cropland – 0 acres
6. Dry Cropland – 0 acres
7. Forestry – 0 acres
8. Rangeland – 0 acres

E. Narrative Summary of the Proposed Action:

Background

Deep Creek is a 16-km-long tributary to the Tobacco River, which flows into Lake Koocanusa, a trans-boundary (USA-Canada) impoundment on the Kootenai River. The upper portion of Deep Creek, above the project location, is classified as a Rosgen (1996) B-type stream channel, which flows exclusively through USFS land. It has a bankfull discharge, bankfull width, and gradient of 90 cfs, 15 feet, and 3-4 %, respectively. The lower portion of Deep Creek is made up of largely degraded C and E stream channel types (Rosgen 1996) that flow through farm and saw mill properties and have a bankfull discharge, bankfull width, and gradient of 110 cfs, 15-30 feet, and 1-2 % respectively. Deep Creek originates in a high elevation basin within the Whitefish Mountain Range, and the flow regime consists of a snowmelt runoff freshet generally in late May/early June and high elevation spring flows throughout the rest of the year. With this type of flow regime, Deep Creek maintains a relatively consistent temperature, rarely exceeding 15 C.

Westslope cutthroat trout (*Oncorhynchus clarki lewisi*), bull trout (*Salvelinus confluentus*), brook trout (*Salvelinus fontinalis),* and rainbow trout (*Oncorhynchus mykiss)* all exist in Deep Creek, but bull trout and westslope cutthroat trout are the primary species upstream of the Deep Creek diversion. Bull trout are currently listed as a threatened species on the Endangered Species List for the Kootenai River Drainage. There has not been a confirmed observation of bull trout spawning in Deep Creek; however, anecdotal information suggests that bull trout did spawn in Deep Creek prior to the 1980s.

Water diverted from the existing diversion supplies water to Black Lake which is a spawning and rearing pond for the Crystal Lakes Trout Hatchery, a privately owned commercial fish hatchery near Fortine, Montana. The hatchery was constructed in the early 50s and has historically supplied fish for private ponds. However, more recently Crystal Lakes Trout Hatchery has partnered with Montana FWP to create a genetic reserve for arctic grayling (*Thymallus arcticus*) and to provide a certified disease-free source of brook trout.

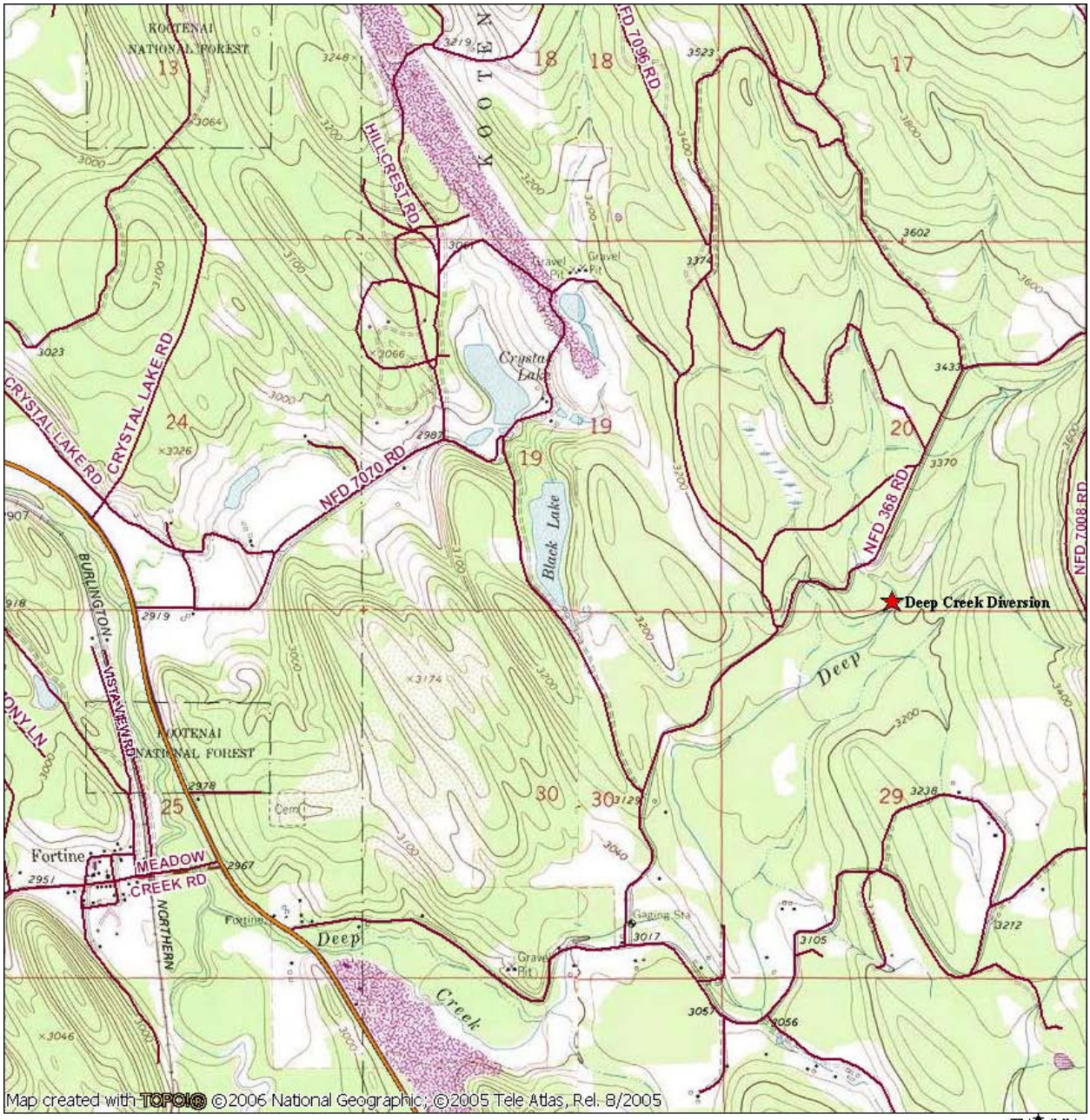
The Crystal Lakes Trout Hatchery obtains water for their facility from two diversions on Deep Creek. Montana FWP partnered with the hatchery owner in 2009 to install a fish screen on the uppermost diversion. However, the lower diversion currently represents the largest unscreened diversion on Deep Creek.

Purpose

The purpose of the proposed project is to install an FCA Farmers fish screen to eliminate fish entrainment in the currently unscreened irrigation diversion. The proposed improvements will also decrease irrigation system maintenance. The existing diversion provides water for irrigation and fish culture at the Crystal Lakes Fish Hatchery, a commercial aquaculture facility.

Proposed Activities

The current point of diversion at this location consists of an open ditch that is approximately 80 feet long. A concrete structure and headgate control the quantity of water entering the irrigation conveyance system, which consists of approximately 25 feet of 18" corrugated metal pipe and 1.4 miles of open ditch (Figure 2). This project proposes to install a new headgate at the point of diversion, and an FCA Farmers fish screen and fish bypass within the existing open ditch between the point of diversion and the concrete structure. The installation of a new headgate structure will require placing approximately 10-15 yards of large rock in the existing irrigation ditch in order to secure the headgate. Additionally, approximately 10 yards of fill material will be required to backfill around the fish screen structure (Figure 3). The large rock will be placed approximately at the bankfull elevation at the point of diversion on Deep Creek. The existing concrete structure will remain in place. The proposed project would require some ground disturbance during the installation of the fish screen and headgate. The entire project will be located within the floodplain of Deep Creek and existing diversion channel, and would have a footprint of less than ¼ acre. The FCA Farmers fish screen would be fabricated off-site and transported to the project area. Installation of the fish screen, diversion structure, and headgate would require an excavator to accomplish the work. No riparian vegetation will be removed for this project, and all equipment would access the project area using an existing road. The project area is located entirely on land administered by the United States Forest Service. The project would likely be completed in late summer or fall 2013 and take no longer than about five days.



INSTALL FISH SCREEN ON IRRIGATION DIVERSION
PROJECT #199500400
Deep Creek - Section 20, Township 35N, Range 25W
Mount Marston Quad

Figure 1. Location of the Deep Creek Irrigation Fish Screen Diversion Project.

Figure 2. This photograph is a picture of an FCA Farmers fish screen that the Montana Chapter of Trout Unlimited installed on Sixmile Creek near Missoula, Montana. The proposed fish screen for the Deep Creek project would be similar.

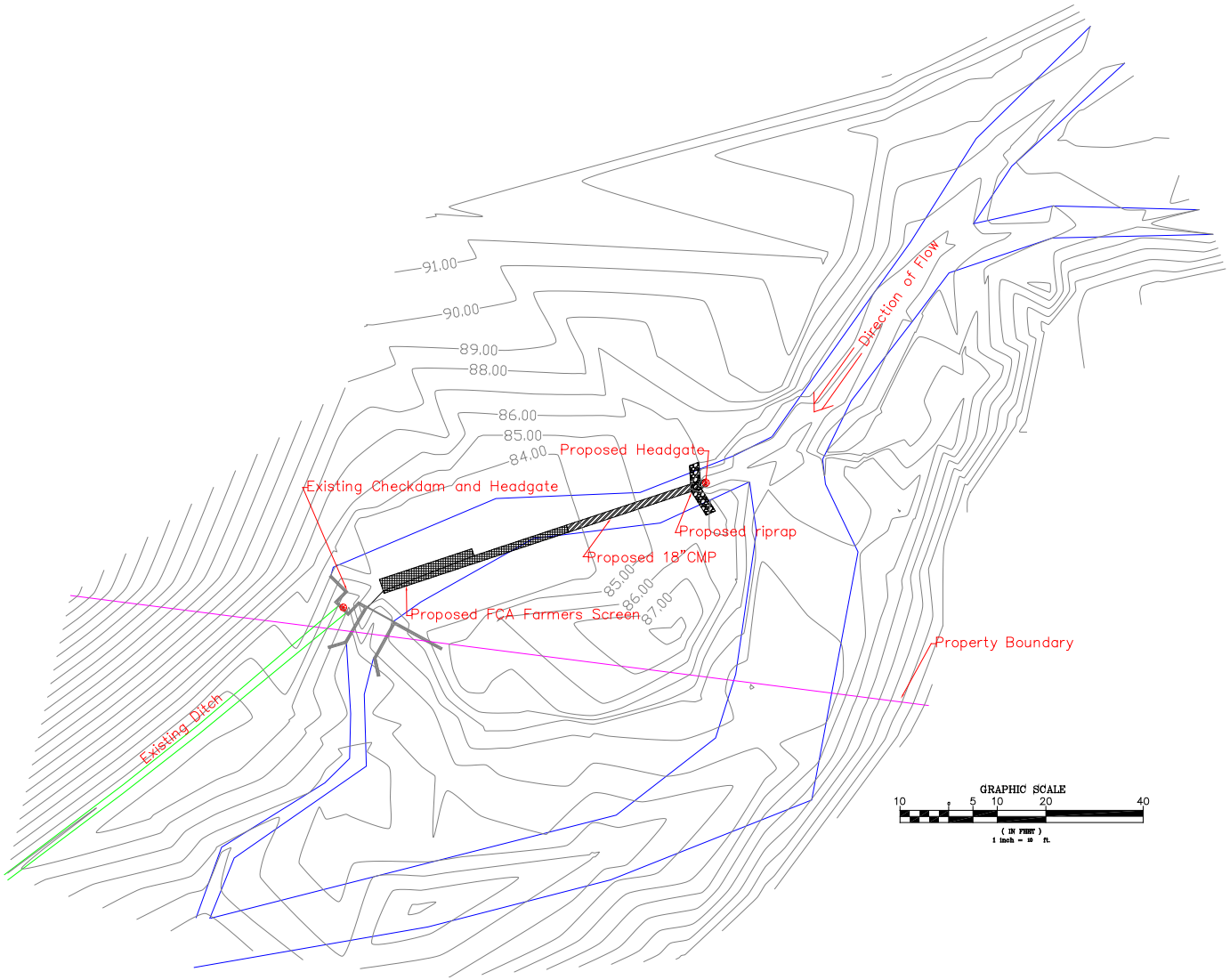


Figure 3. Topographic map of the proposed Deep Creek Fish Screen Project. Contour lines are one foot and elevations are relative to local scale. The blue lines represent Deep Creek perimeter. The project is located on US Forest Land.

PART II. ENVIRONMENTAL REVIEW

A. PHYSICAL ENVIRONMENT

1. LAND RESOURCES Will the proposed action result in:	Impact Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil, which would reduce productivity or fertility?			X			1b.
c. Destruction, covering, or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition, or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?			X			1b.
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				

Comment 1b. There will be some minor excavation of soil to bury the conveyance pipe, fish screen, and fish bypass pipe. Approximately 10 yards of fill material will be required to backfill around the fish screen structure. In addition, the installation of the headgate structure at the point of diversion will require approximately 10-15 yards of large rock needed to secure the structure during high flow events. The amount of fill material placed within the 100-year floodplain would not substantially reduce the flood conveyance capacity of Deep Creek. The fill material will be acquired off-site. Therefore, the changes in siltation, deposition, and/or erosion at this site would be minor.

2. WATER Will the proposed action result in:	Impact Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen, or turbidity?			X		Yes	2a.
b. Changes in drainage patterns or the rate amount of surface runoff?		X				
c. Alteration of the course or magnitude of floodwater or other flows?			X			2c.
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water-related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?		X				
i. Effects on any existing water right or reservation?		X				.
j. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				2j.
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
l. Will the project affect a designated floodplain?		X				
m. Will the project result in any discharge that will affect federal or state water quality regulations? (Also see 2a)		X				

Comment 2a. The majority of the project will be constructed outside of the active stream channel, which will be accomplished by dewatering the existing irrigation ditch between the point of diversion and the existing concrete structure to the extent practically possible. However, the proposed excavation may result in minor turbidity in Deep Creek within the vicinity of project area. The turbidity would be relatively short term (up to five days), and construction will be completed in the late summer/fall when the stream is at its lowest level, which should decrease the expected sediment load. The proposed project will require a temporary turbidity exemption (318 Authorization) from Montana Department of Environmental Quality. Therefore, the turbidity duration and total load that result from this project are expected to be short term and minor.

Comment 2c. The proposed project will install approximately 10-15 yards of large rock in the existing open irrigation ditch in order to secure the proposed headgate during high flow events. Additionally, installation of the fish screen will require approximately 10 yards of fill material to adequately secure the fish screen. The effects of the placement of the large rock and fill material within the active floodplain would be minimized by limiting the height of the rock structure to approximately bankfull height at the point of diversion, which will not constrict floodwaters. Therefore, the proposed project would have minimal effect on the course or magnitude of floodwaters.

Comment 2j: The installation of the fish screen should reduce the debris entering the irrigation system and thus reduce maintenance and related issues for the water users on this irrigation system.

3. AIR **Will the proposed action result in:**	**Impact Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Emission of air pollutants or deterioration of ambient air quality? (Also see 13c.)		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns, or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. Will the project result in any discharge, which will conflict with federal or state air quality regulations?		X				

4. VEGETATION **Will the proposed action result in:**	**Impact Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Changes in the diversity, productivity, or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?			X			4a.
b. Alteration of a plant community?			X			4a.
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. Will the project affect wetlands or prime and unique farmland?		X				

Comment 4a: This project would require relatively little ground disturbance (< ¼ acre) to install the fish screen and bypass, which would be sited near the existing point of diversion and irrigation ditch. Installation will require the use of a small excavator. Accessing the site with the excavator may result in minimal vegetation trampling. The entire project is within a mixed conifer stand with very little understory. All of the construction will be laid out to minimize vegetation disturbance. The potential for noxious weed introduction and proliferation will be minimized by requiring all machinery used within the project area to be washed prior to project use and all disturbed areas will be reseeded with a mixture of native grass and forbe seed. The overall impact on the vegetative community at this site would be minor and not expected to have long-term impacts.

5. FISH/WILDLIFE Will the proposed action result in:	Impact Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?			X			5b.
c. Changes in the diversity or abundance of nongame species?			X			5b.
d. Introduction of new species into an area?		X				
e. Creation of a barrier to the migration or movement of animals?		X				
f. Adverse effects on any unique, rare, threatened, or endangered species?			X			5f.
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest, or other human activity)?		X				
h. Will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat?		X				5f.
i. Will the project introduce or export any species not presently or historically occurring in the receiving location?		X				

Comment 5b:

Fish: This project is designed to eliminate entrainment and thus mortality of fish into the existing irrigation system including all fish species present in Deep Creek. Several species of game fish reproduce and rear in Deep Creek, including westslope cutthroat trout, brook trout, and possibly bull trout. Although bull trout spawning is not documented in Deep Creek, juvenile bull trout have been observed in Deep Creek. The installation of this fish screen will benefit all fish species in Deep Creek by reducing mortality related to entrainment.

Amphibians: Some amphibians including spotted frogs (*Rana pretiosa*), western toads (*Bufo boreas*), long-toed salamanders (*Ambystoma macrodactylum*), and Pacific chorus frogs (*Pseudacris regilla*) may currently reside within or around the construction area, and the activity may have a minor impact on these individuals. However, the impact to the amphibian populations within the local area should be short term and minor.

Comment 5f: Grizzly bears (*Ursus arctos horribilis),* and Canada lynx (*Lynx Canadensis)* may be present within the general vicinity of the project area, but no known birthing sites are known to occur in the immediate area. The effect of this project on these species is expected to be short term

and minor or nonexistent, which would be similar to the effect on other birds and mammals within the area. MFWP based this assessment on the relatively small area of land disturbance, and the relatively short period of time required to accomplish the project. This project is not likely to have secondary effects, such as displacement, on any of these species for these same reasons.

Bull trout spawning has not been documented in Deep Creek; however, juvenile bull trout do occupy Deep Creek for extended periods. Overall this project would have beneficial effects on all fish species residing in Deep Creek, including bull trout. The installation of the fish screen would have only minor or nonexistent impacts on bull trout and other fish species due to the fact that any work instream would be completed during the late summer/fall when water levels are lowest and the irrigation season is over, which would reduce instream sedimentation, and almost all ground disturbance would occur in the dry. Therefore any impacts to juvenile bull trout rearing in Deep Creek should be minor to nonexistent.

B. HUMAN ENVIRONMENT

6. NOISE/ELECTRICAL EFFECTS **Will the proposed action result in:**	**Impact Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Increases in existing noise levels?		X				
b. Exposure of people to severe or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				

7. LAND USE **Will the proposed action result in:**	**Impact Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. Conflict with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on or relocation of residences?		X				

8. RISK/HEALTH HAZARDS Will the proposed action result in:	Impact Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?			X			8.a.
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?		X				
d. Will any chemical toxicants be used?		X				

Comment 8a: The proposed project will require the use of an excavator. Associated oil, fuel and hydraulic fluid spills will be minimized using the following safeguards. Equipment fueling will occur only off-site, and all equipment will be inspected for leaks prior to transportation to the project site. Equipment will be secured nightly outside the active floodplain. The equipment operator will be required to have a spill containment kit at the work site. Potential impacts associated with hazardous substance spills will be minimized first by the best management practices identified above, and further reduced by ensuring spills are identified early and containment/cleanup conducted promptly. Therefore, the potential impacts from any spills are expected to be minor and short term.

9. COMMUNITY IMPACT Will the proposed action result in:	Impact Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				

10. PUBLIC SERVICES/TAXES/UTILITIES Will the proposed action result in:	Impact Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:		X				
b. Will the proposed action have an effect upon the local or state tax base and revenues?		X				
c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Will the proposed action result in increased used of any energy source?		X				
e. Define projected revenue sources?		X				10e.
f. Define projected maintenance costs?		X				10e.

Comment 10e: This project could cost up to $40,000 and would be cost-shared by Montana FWP, with funding from Bonneville Power Administration through the Libby Mitigation Project, and the irrigator (James Smith). Montana FWP would be responsible for maintaining the fish screen structure for 2 years, and then maintenance thereafter would be the responsibility of the water user associated with this system. Maintenance costs are unknown, but are expected to total less than 10% of the total project cost over a 10-year period.

11. AESTHETICS/RECREATION Will the proposed action result in:	Impact Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?		X				
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings?		X				
d. Will any designated or proposed wild or scenic rivers, trails, or wilderness areas be impacted? (Also see 11a, 11c)		X				

12. CULTURAL/HISTORICAL RESOURCES **Will the proposed action result in:**	**Impact Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Destruction or alteration of any site, structure or object of prehistoric, historic, or paleontological importance?		X				
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				
d. Will the project affect historic or cultural resources?		X				

13. SUMMARY EVALUATION OF SIGNIFICANCE **Will the proposed action, considered as a whole:**	**Impact Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources that create a significant effect when considered together or in total.)		X				13a.
b. Involve potential risks or adverse effects that are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard, or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. Is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)	X					13f.
g. List any federal or state permits required.						13g.

Comments 13a: This project is not expected to have any cumulative impacts to either the natural or human environments.

Comments 13f: Issues associated with water use and water rights often generate controversy from some people. It is not known if this project would have organized opposition.

Comment 13g: The following permits would be required:

1. Montana Department of Enviroment and Water Quality, 318 Turbidity Exemption Permit
2. Lincoln County, County Floodplain Development Permit
3. Montana Fish, Wildlife & Parks SPA 124 Permit

PART III. ALTERNATIVES

Alternative 1 – No Action

The no-action alternative would allow status quo operation of the irrigation diversion on Deep Creek to continue, which allows fish entrainment into the irrigation system. Implementation of this alternative would do little to conserve westslope cutthroat trout and bull trout in the Deep Creek drainage.

Alternative 2 – Installation of a headgate, fish screen, and fish bypass (Proposed Action)

Montana FWP is proposing to install an FCA Farmers fish screen on an existing irrigation diversion on Deep Creek. The project would occur in late summer or fall 2013 and would include the installation of a headgate, fish screen, and fish bypass. The project would benefit all fish species residing in Deep Creek, including westslope cutthroat trout and bull trout.

PART IV. EA CONCLUSION SECTION

1. **Based on the significance criteria evaluated in this EA, is an EIS required?**

   MFWP concludes that an EIS is not required for the implementation of this project. MFWP further concludes from the information presented in this document that the proposed activities will have either no impact or a minor positive impact on the physical and human environment.

2. **Public involvement:**

   Notification of this draft environmental assessment (EA) is being distributed to all individuals and groups listed in the cover letter. The EA will be placed on the MFWP web site. Individuals that wish to provide comments to this document or obtain additional information can contact Jim Dunnigan at (406) 293-4161, Ext. 200.

3. Duration of comment period:

There will be a 30-day public comment period for this environmental assessment. Comments will be accepted through March 13, 2013. Submit comments to: Montana Fish, Wildlife & Parks, Attention: Jim Dunnigan, 385 Fish Hatchery Road, Libby, MT 59923, or e-mail to jdunnigan@mt.gov.

4. Person responsible for preparing the EA:

Jim Dunnigan, Fisheries Biologist
Montana Fish, Wildlife & Parks
385 Fish Hatchery Road
Libby, MT 59923
(406) 293-4161, Ext. 200